

Welcome

Ubuntu 101

An Introduction to Ubuntu

Jeremy Bicha

ubuntu 

Overview

- Where did Ubuntu come from?
- What makes Ubuntu different?
- How do I install Ubuntu?
- How do I use Ubuntu?
- How can I get more help?

GNU Project

- Unix was created in 1969 as an alternative to the complex mainframe Multics operating system
- Unix originally was freely licensed, but became increasingly proprietary
- Richard Stallman founded the GNU Project to create a completely free ecosystem similar to Unix

Richard Stallman



A Kernel

- By the end of the 1980s, GNU had all of the basic components necessary except the **kernel**

The Linux Kernel

From: torvalds@klaava.Helsinki.FI (Linus Benedict Torvalds)

Newsgroups: comp.os.minix

Subject: What would you like to see most in minix?

Summary: small poll for my new operating system

Date: 25 Aug 91 20:57:08 GMT

Organization: University of Helsinki

Hello everybody out there using minix -

I'm doing a (free) operating system (**just a hobby, won't be big and professional** like gnu) for 386(486) AT clones. This has been brewing since april, and is starting to get ready. I'd like any feedback on things people like/dislike in minix, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) among other things).

I've currently ported bash(1.08) and gcc(1.40), and things seem to work.

This implies that I'll get something practical within a few months, and **I'd like to know what features most people would want.** Any suggestions are welcome, but I won't promise I'll implement them :-)

Linus (torvalds@kruuna.helsinki.fi)

PS. Yes – it's free of any minix code, and it has a multi-threaded fs. It is **NOT portable** (uses 386 task switching etc), and it probably never will support anything other than AT-harddisks, as that's all I have :-).

Linux

- 91% of the fastest 500 supercomputers run Linux (TOP500, Nov 2011)
- 43% of US smartphone users use Android (Nielsen, Nov 2011)
- Nearly all ebook readers run Linux
- Used by a majority of web servers (65% use Apache Netcraft, Nov 2011)

Linux Distributions

- An operating system using the Linux kernel and including a collection of apps
- There are hundreds available
- Some of the most popular are Red Hat, Fedora, SUSE, Debian, and Ubuntu

Debian



“Without Debian, Ubuntu would not be possible.”

- *<https://wiki.ubuntu.com/MarkShuttleworth>*

Debian Social Contract

- Debian will remain 100% free.
- We will give back to the free software community.
- We will not hide problems.
- Our priorities are our users and free software.
 - *http://www.debian.org/social_contract*

Debian Free Software Guidelines

- Free Redistribution
- Source Code
- Derived Works
- No Discrimination Against Persons, Groups, or Fields of Endeavor
- License Must Not Be Specific to Debian
- License Must Not Contaminate Other Software

Other Debian Distinctives

- Independently Governed Organization
- Focus on Stability (i.e. “release when ready”)
- Supports a wide variety of architectures and desktops
- Abundance of choice
- Package management system

Mark Shuttleworth's Idea

To build a world class operating system for ordinary desktop computer users, that is genuinely free and freely available, that is immediately useful, and that represents the very best that the free software world can achieve today.

– *The Official Ubuntu Book*

Ubuntu Distinctives

- Shared governance between Canonical and community developers
- Scheduled releases every six months.
Every two years, a long term support release.
- There will never be a separate “commercial” version
- Best of class default choices
- Supports the Intel/AMD 32-bit and 64-bit platforms as well as ARM
- Pragmatic use of proprietary hardware drivers where no usable open source alternative exists

Ubuntu Releases

- Official Releases are numbered in Year.Month format. The current release is 11.10.
- The “Adjective Animal” format is used during the development cycle. The current release is Oneiric Ocelot. Next is Precise Pangolin.



4.10 Warty Warthog



5.04 Hoary Hedgehog



5.10 Breezy Badger



6.06 Dapper Drake



6.10 Edgy Eft



7.04 Feisty Fawn



7.10 Gutsy Gibbon



8.04 Hardy Heron



8.10 Intrepid Ibex



9.04 Jaunty Jackalope



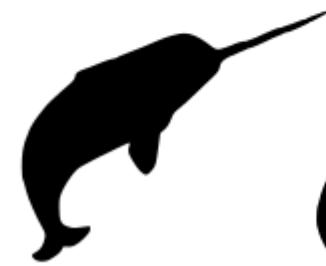
9.10 Karmic Koala



10.04 Lucid Lynx



10.10 Maverick Meerkat



11.04 Natty Narwhal



11.10 Oneiric Ocelot

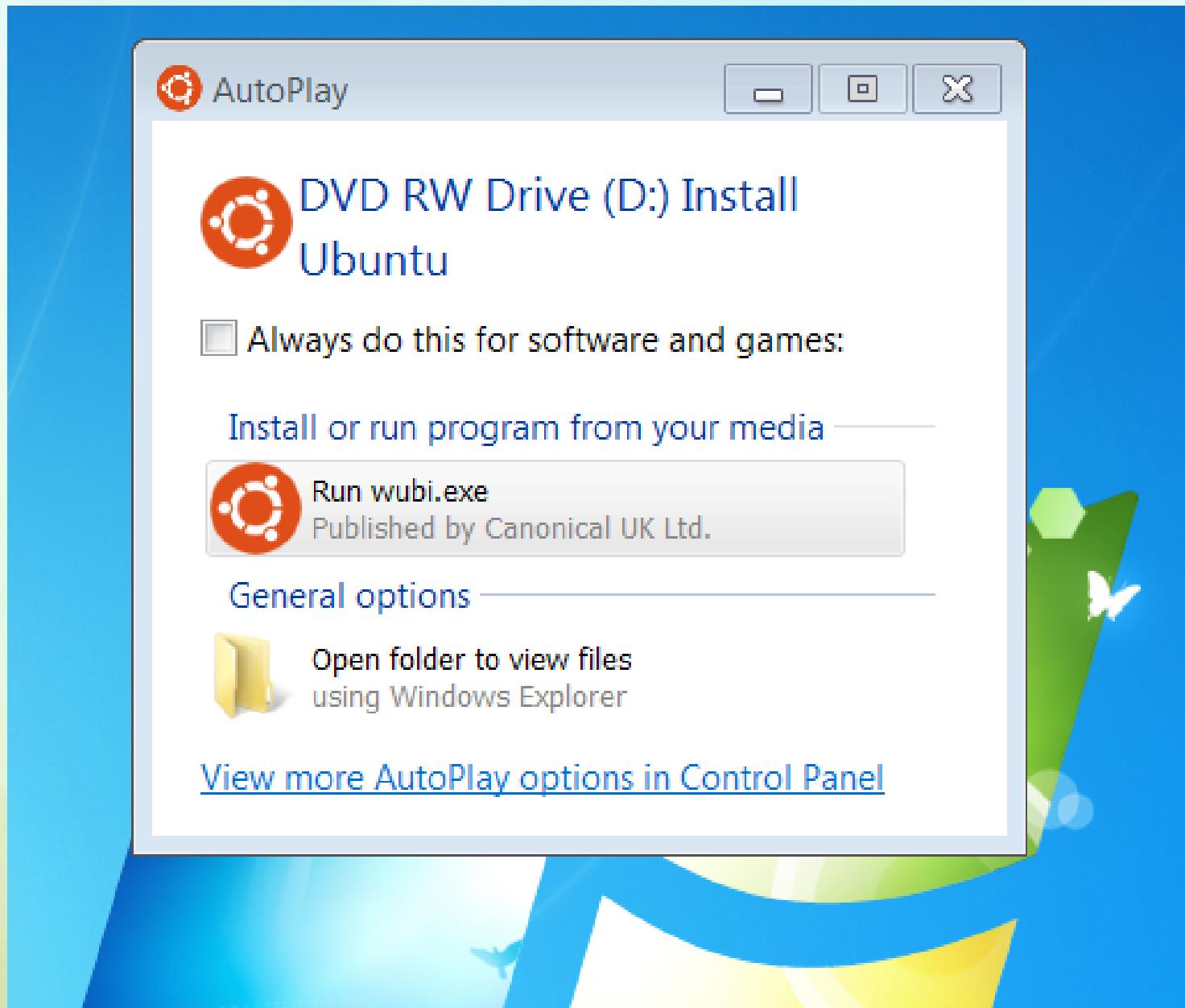
12.04 Precise Pangolin

Install

Installation Choices

- 32-bit or 64 bit?
- Normal install, WUBI, or Virtual machine?
- At least 10 GB of hard drive space

WUBI



Dual Boot

GNU GRUB version 1.99-12ubuntu5

- Ubuntu, with Linux 3.0.0-12-generic
- Ubuntu, with Linux 3.0.0-12-generic (recovery mode)
- Memory test (memtest86+)
- Memory test (memtest86+, serial console 115200)
- Microsoft Windows XP Professional (on /dev/sda1)

Use the ↑ and ↓ keys to select which entry is highlighted.
Press enter to boot the selected OS, 'e' to edit the commands
before booting or 'c' for a command-line.

Installation Choices

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Ubuntu Tour

Intro to Unity

- Launcher (At the Left)
- Menu Bar (At the Top)
- Dash

The Launcher



Menu Bar

- Stretches across the top of the screen
- Always visible
- Window management buttons
- App Menu
- Status Menus (Indicators)

The Dash

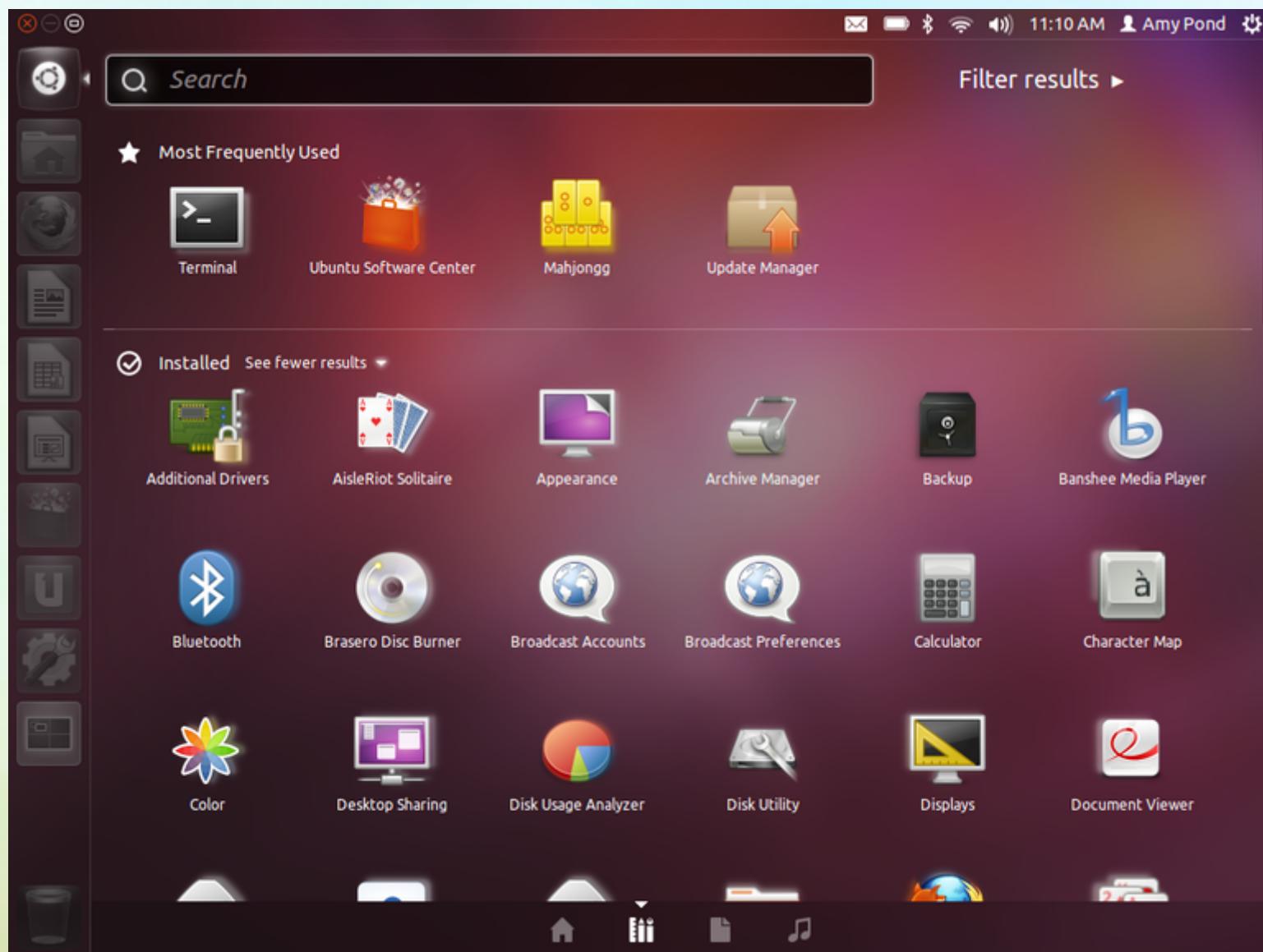


Keyboard Shortcuts

- Windows key – Opens the dash
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Dash Keyboard Shortcuts

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Logon Screen

Customizing Ubuntu

Getting Work Done

Getting Fun Done

Creativity

Install More Apps

Keeping Ubuntu Up to Date

How Can I Get More Help?

Help!

- Pre-installed help
- help.ubuntu.com
- Askubuntu.com
- Ubuntuforums.com
- IRC chat
- Columbia Linux Users Group (**COLALUG**)

Open Software

Open Source Software is software whose original source code is made freely available and may be redistributed with or without modification.

open-it-lab.com/open/software



Open Hardware

Open Hardware is hardware whose design is made publicly available so that anyone can study, modify, distribute, make and sell the design or hardware based on that design.

open-it-lab.com/open/hardware



Open Content

Open Content describes any kind of creative work, or content, published under a license that explicitly allows copying and modifying of its information by anyone.

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Overview

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How many here already use Ubuntu?

Today, we're going to discuss the history of Ubuntu and talk about what Ubuntu is. We're going to walkthrough an Ubuntu installation and then give the grand tour of Ubuntu, showing off the apps that come with Ubuntu and how to add more. Finally, we'll show you how to get more help when you come across problems.

To discuss where Ubuntu came from, we have to go back in time a few decades.

GNU Project

- Unix was created in 1969 as an alternative to the complex mainframe Multics operating system
- Unix originally was freely licensed, but became increasingly proprietary
- Richard Stallman founded the GNU Project to create a completely free ecosystem similar to Unix

In the 1960s, MIT, AT&T's Bell Labs and GE developed an operating system named Mulics. But the OS was complex and heavy for its time. Two Bell Labs researchers, Ken Thompson and Dennis Ritchie led a team to create a better OS in 1969. That OS was named Unix. Dennis Ritchie designed the C programming language which Unix was soon rewritten to use. Because of an anti-trust ruling, AT&T could not enter the computer business and so freely licensed Unix. That restriction ended in 1983 and AT&T soon moved to try to capitalize on Unix's success. Unix became increasingly proprietary as different vendors developed their own versions.

Richard Stallman



In 1984, Richard Stallman, a hacker at MIT, launched the GNU Project which had the goal of creating enough free software so that he wouldn't need to use any software that wasn't free. Free software is basically the same as open source software. It refers not just to the price (it's possible to charge for free software), but to the ability for anyone to share, modify and redistribute the software. It-ology offers another workshop that focuses more on what open source software is.

A Kernel

- By the end of the 1980s, GNU had all of the basic components necessary except the **kernel**

By the end of the 1980s, GNU had all of the basic components necessary except the kernel. The kernel is the fundamental piece of an operating system that runs your apps, allows you to run multiple apps simultaneously and use hardware.

In 1991, a student in Finland was studying operating systems and decided to branch beyond the sample educational Minix kernel offered at the university and write his own kernel. He had a new 386 computer so he wrote it specifically for that. Because he thought it might be useful to someone else, he posted his work on the Internet. Here's the original announcement for what later became known as Linux.

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A few things I'd like to point out is that it started out as a simple hobby but became much more than that. From the beginning, he wanted to make his work available and was willing to implement suggestions. I don't think he expected that others would be submitting code, not just ideas. And finally, Linux today supports more hardware than any other operating system in history.

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- Nearly all ebook readers run Linux
- Used by a majority of webservers (65% use Apache Netcraft, Nov 2011)

From the world's largest supercomputers to the smallest embedded devices, Linux is everywhere. Every ebook reader I've seen runs Linux; that includes the Kindle, the Nook, Sony Reader and more. Most webservers run either Linux or BSD which is similar to Linux. So if you use Google or Amazon, you're using Linux in a way.

Linux Distributions

- An operating system using the Linux kernel and including a collection of apps
- There are hundreds available
- Some of the most popular are Red Hat, Fedora, SUSE, Debian, and Ubuntu

As useful as the kernel is, it's only a part of what you need. Developers bundle the kernel and useful apps into what are called distributions. Some of the more popular include Red Hat and its community Fedora version, SUSE, Debian, and Ubuntu.

Debian



“Without Debian, Ubuntu would not be possible.”

– <https://wiki.ubuntu.com/MarkShuttleworth>

As Ubuntu's founder, Mark Shuttleworth says, Debian is the foundation for Ubuntu. Debian is one of the oldest distributions. It was founded in 1993 by a developer named Ian Murdock. Picking names for software is quite challenging. Ian decided to name his project based on a combination of his name and his then-girlfriend's name, Debra.

Debian Social Contract

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Debian gives back to the free software community by keeping all of their code and bugtrackers open. Also, Debian developers submit improvements and bug reports to the original developers, which we call the “upstream” developers.

Also part of the Social Contract, and in fact the oldest part are the Free Software Guidelines...

Debian Free Software Guidelines

- Free Redistribution
- Source Code
- Derived Works
- No Discrimination Against Persons, Groups, or Fields of Endeavor
- License Must Not Be Specific to Debian
- License Must Not Contaminate Other Software

Debian's Free Software Guidelines were and continue to be very influential. They were used as the basis of the Open Source Definition. Here's some of the high points from Debian's list.

1. No royalties, no restrictions on selling or giving away the software
2. Source code must be available and modifications must be allowed to be made and distributed the same way as the original.
3. For instance, an app can't restrict its use in a business or by the US military.
4. Developers can't make special arrangements for Debian to distribute their software; those privileges must be available to everyone.
5. A software license shouldn't be allowed to restrict what you can do with other software you may want to use.

Other Debian Distinctives

- Independently Governed Organization
- Focus on Stability (i.e. “release when ready”)
- Supports a wide variety of architectures and desktops
- Abundance of choice
- Package management system

Here are some other things Debian is known for. Debian is the largest Linux distribution that completely runs itself without an outside controlling company. Debian takes 2 or 3 years between releases, trying to make the releases as bug free as possible. Debian sees itself as the “Universal Operating System” supporting every architecture and app equally. The most common architectures include the Intel/AMD 32-bit and 64-bit systems, the PowerPC architecture used by Apple before they switched to Intel 64-bit, and the ARM architecture that runs on cellphones and an increasing number of gizmos around your house. Additionally, Debian supports half a dozen other systems.

The last point about Debian is that they were one of the first to create a package management system which allows for easy install & upgrades of all of your software. This is in contrast to Windows or Mac where you have to upgrade seemingly every app separately which opens the possibility that either you forget to update or you get tired of messing with it.

Mark Shuttleworth's Idea

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So we've seen how GNU laid the foundation for a free operating system, Linux provided the heart of the system, and distributions like Debian wrapped up all this work into a nice package. Mark Shuttleworth, who became a millionaire with his security certificate company, was a Debian developer and saw the potential to make this software available to a lot more people.

Ubuntu Distinctives

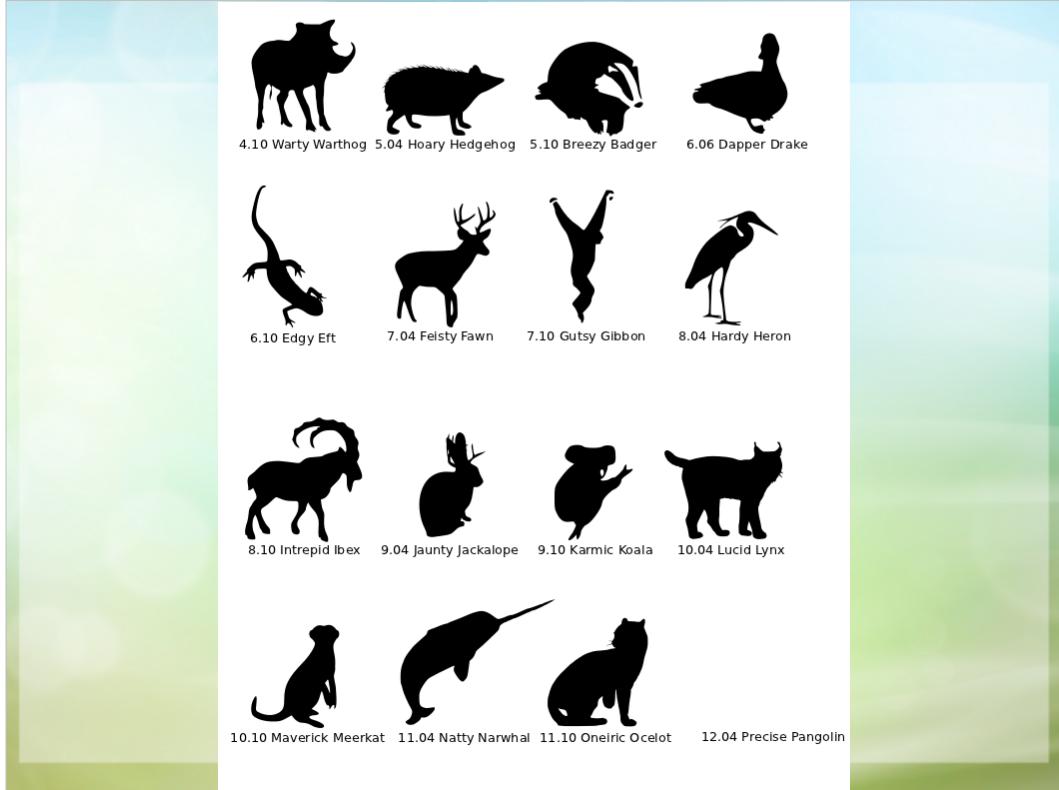
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- Pragmatic use of proprietary hardware drivers where no usable open source alternative exists

I spent some time talking about Debian's distinctives so that I could show how Ubuntu changed some of them. Shuttleworth founded a company named Canonical which employs a few hundred developers, designers, and more. A lot of decision-making power for Ubuntu itself though is held by community members who are not employed by Canonical. A big contrast with Debian and still somewhat unique among other operating systems is that Ubuntu always releases every 6 months in April and Oct. And since that's more frequently than many large IT depts like to upgrade, there's a long term support release every two years that gets security updates for up to 5 years. A big contrast with Red Hat's business model is that Ubuntu has a promise to never release a separate version just for paying companies. Ubuntu focuses their efforts by only supporting the normal architectures home & office users have. Also because too many choices are confusing especially for people new to something, Ubuntu picks the best web browser, word processor, and so on and supports those. The other choices are available for install later on for those that want them. Finally, Ubuntu will include proprietary drivers for things like graphics cards or wireless networking when necessary.

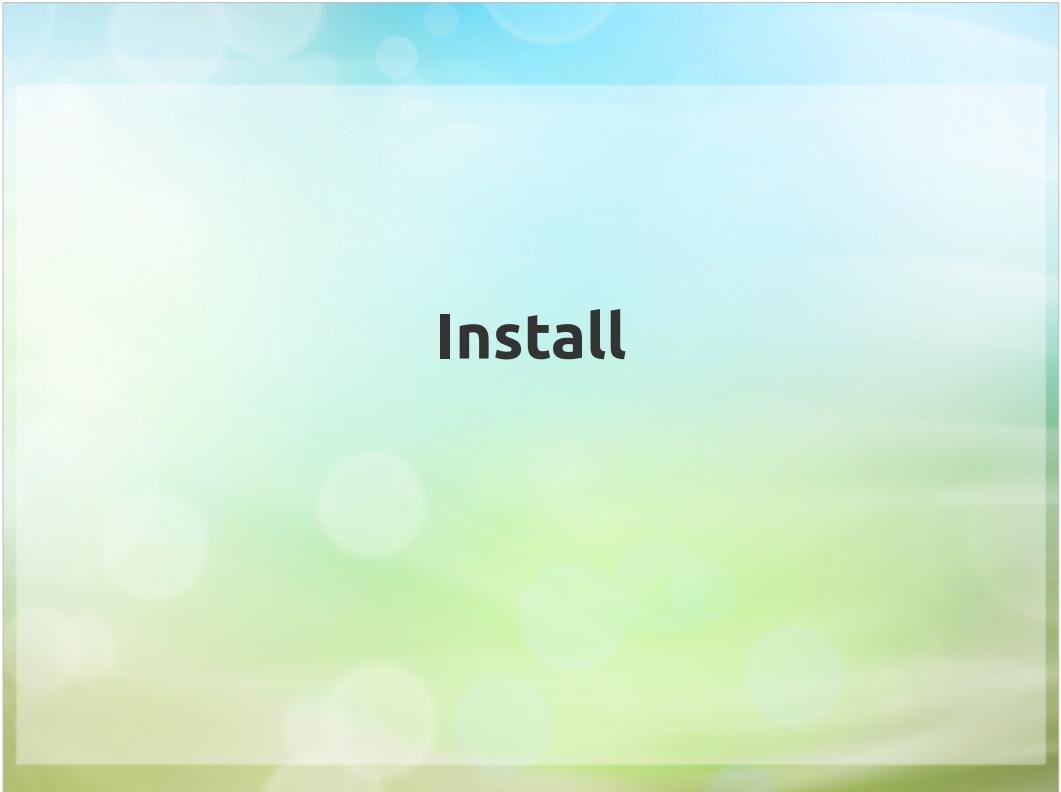
Ubuntu Releases

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The current Ubuntu release is 11.10. This isn't just a random number, but it represents the year and the month. This one was released in October (the 10th month) 2011. Code names are used during the development cycle. I guess they're not used as much after release since they may be seen as too much fun or too confusing or something.



These are all of the Ubuntu releases starting with the Warty Warthog, which got its name because the small group of developers expected it to have some ugly spots. The releases in the right column are the Long Term Support (LTS) releases. The first LTS was Dapper Drake was the only release not in April or October. It was released in June to get an extra 6 weeks of attention especially since the decision to make it LTS happened later in the cycle. As you can see, the next release, Precise Pangolin will also be an LTS in April.



Install

Now we're going to show you how the install works.

Installation Choices

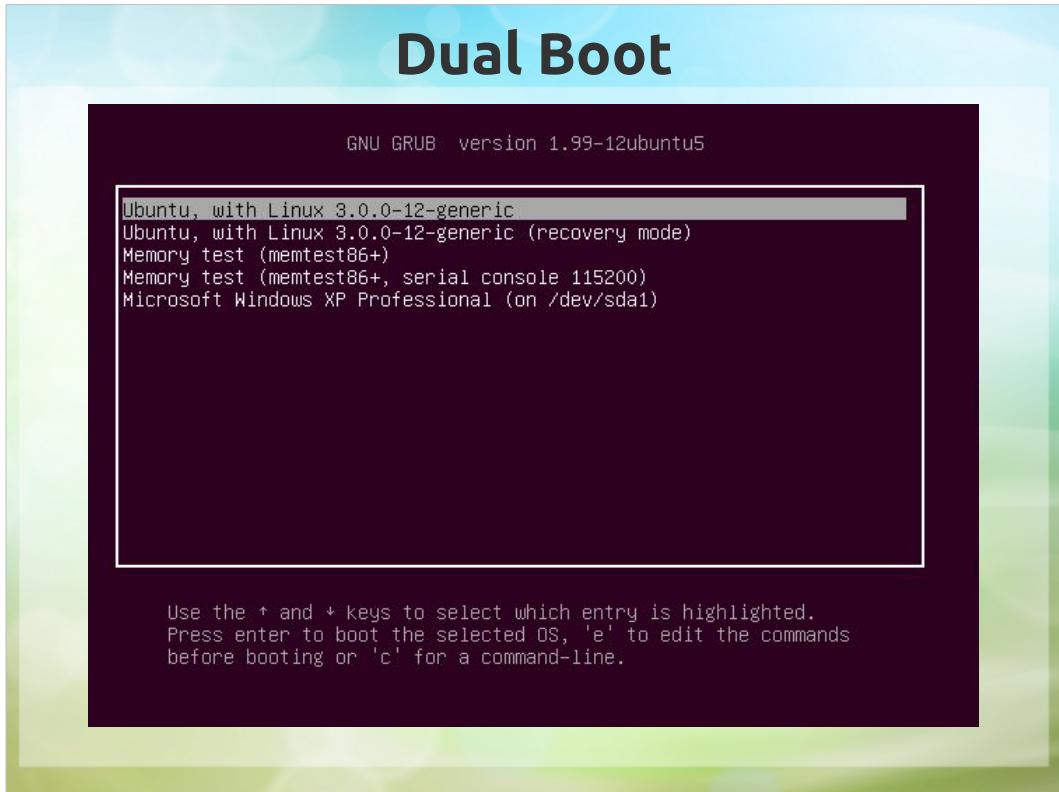
- 32-bit or 64 bit?
- Normal install, WUBI, or Virtual machine?
- At least 10 GB of hard drive space

There isn't a lot of difference between 32-bit and 64-bit. Basically all computers will run the 32-bit version and that's what's available on the CDs. If you have more than 3GB of memory or so, you'll get slightly better performance with the 64-bit version.



WUBI allows you to install Ubuntu from inside Windows. I don't recommend it as some people have had trouble when upgrading and it may be difficult to fix Windows if WUBI breaks badly.

Dual Boot



The “normal” install resizes your Windows partition to make room for Ubuntu and sets up a dual boot system. After installing, each time you start your computer, you'll have the option to choose to boot either Ubuntu or Windows but Ubuntu is the default. Just use your arrow keys to select the one you want since the mouse hasn't been loaded at this point in the boot process. To do the normal install, turn off your computer. When you turn your computer on, you may have to press the F12 key or similar to tell your computer to boot from the CD.

Installation Choices

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- Normal install, WUBI, or Virtual machine?
- At least 10 GB of hard drive space

Finally, you could also use a virtual machine if you want a safer sandbox to install Ubuntu in. It will be a bit slower because your computer has to run two operating systems at once. And whichever way you do it, you should have at least 10GB of available hard drive space. Fortunately, the actual install is pretty simple and there aren't a lot of choices you have to make.

Ubuntu Tour

Intro to Unity

- Launcher (At the Left)
- Menu Bar (At the Top)
- Dash

New to Ubuntu in 2011 is Unity, a completely reimagined way to use your computer. Unity is designed to minimize distractions, give you more room to work (especially important on small screens), and help you get things done. The three major parts of Unity are the launcher, the menu bar and the dash.

The Launcher



The launcher lives on the left side of the screen and shows you the apps you have running and allows you to store your favorite apps so you can start them quickly. In Windows the taskbar can be set to always show or always hide. But the Ubuntu launcher uses “Intellihide”. It hides when you have an app full screen or covering the space the Launcher normally is. To get the Launcher back, slide your mouse to the left of the screen.

Menu Bar

- Stretches across the top of the screen
- Always visible
- Window management buttons
- App Menu
- Status Menus (Indicators)

The menu bar includes your app's File menus and your system status. The file menus and window management buttons hide out of the way until you move your mouse to the top of the screen.

There are two different kinds of status menus, system-wide ones and application ones. The system ones in order are messaging, power, bluetooth, network, volume, clock, me, and system.



The Dash allows you to quickly find your apps, recently used files, music, and more! You can either type in what you're looking for or click to browse. The small white icons at the bottom are called lenses and allow you to pick what type of thing you want to look for. You can also use Filter Results if you want to be even more specific.

Keyboard Shortcuts

- Windows key – Opens the dash
- Hold down the Windows key to open launcher items
- Alt+F1 – Opens the launcher and makes it keyboard accessible
- Alt+F2 - “Run a command” mode
- F10 – Navigate the menu bar

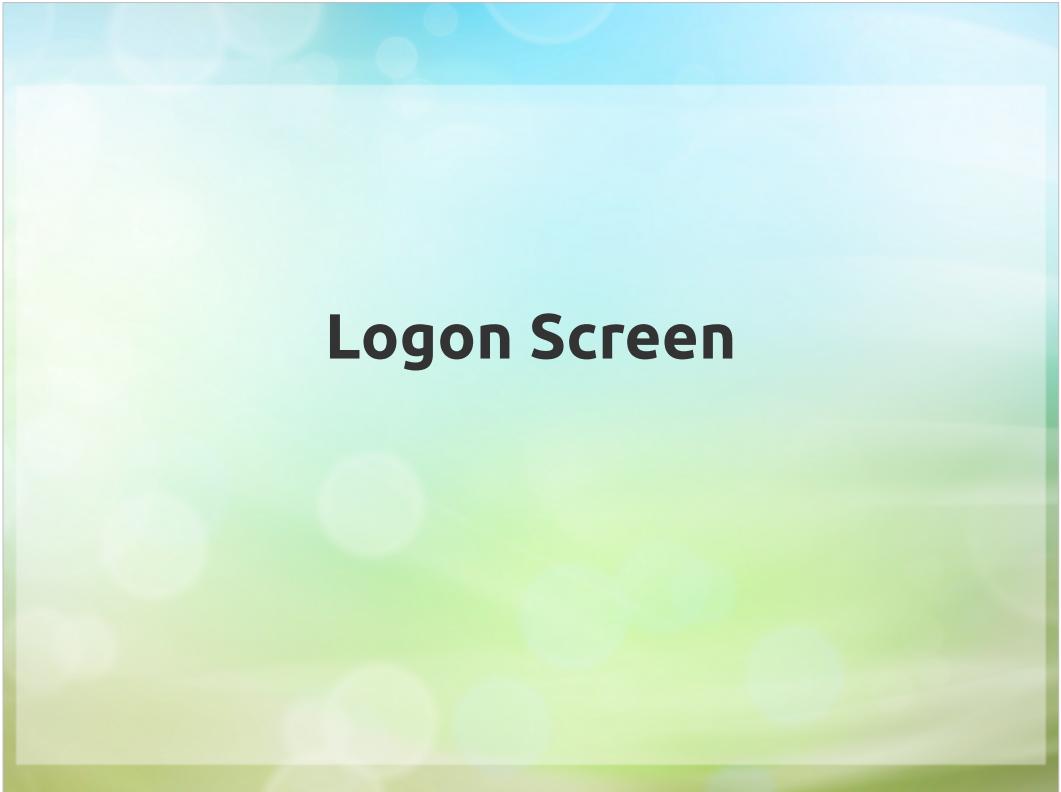
Unity is full of keyboard shortcuts. The Windows key shortcut in particular is very useful.

Dash Keyboard Shortcuts

- Win + A – Open the Applications lens
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- Tab – Switch between lenses
- More Unity shortcuts can be found in the keyboard shortcuts page in help.

And here are some more examples.





Logon Screen

The logon screen uses simpler versions of the status menus we already saw. The gear next to your name allows you to log in to the 2D version which is nearly the same as the 3D version but with out as many visual effects. If your graphics drivers aren't adequate, you'll get the 2D version anyway.



Customizing Ubuntu

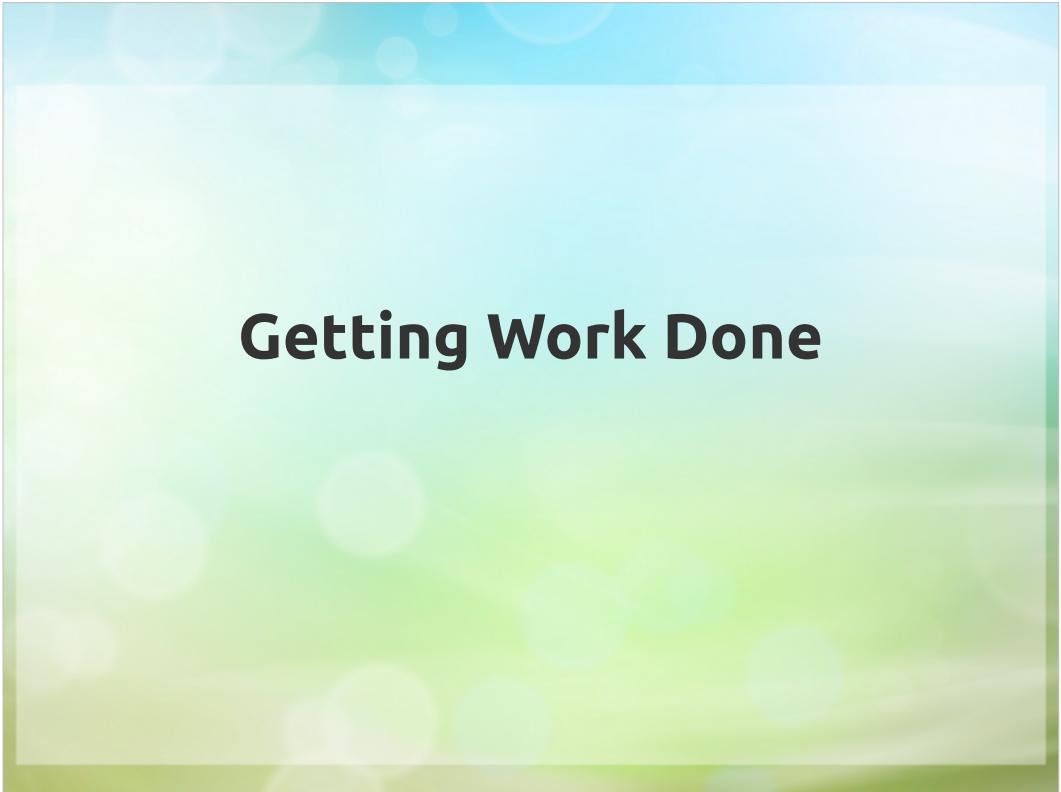
In System Settings, we can change the background.

Accessibility

- * Change the text size
- * Turn on high contrast
- * Turn on the screen reader
- * Turn on the on screen keyboard

Add a new user

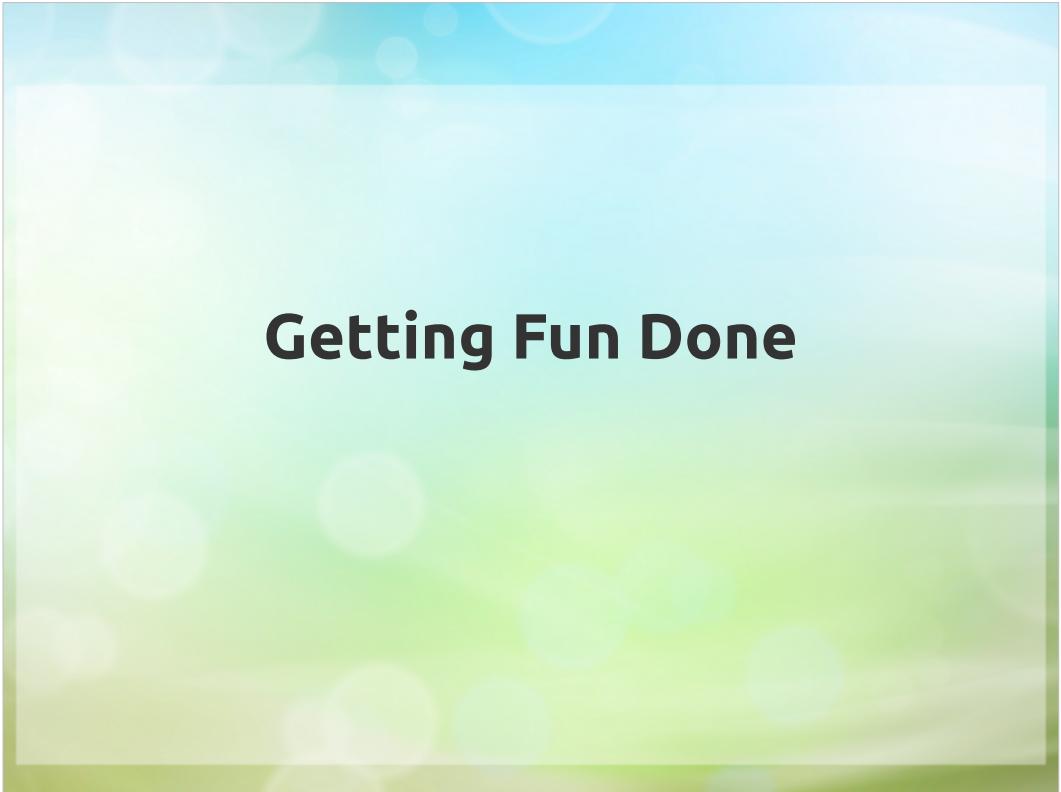
- Ubuntu also supports a guest user by default. The guest user won't have access to your files and any changes they make will be deleted once they log out unless they save files to a separate USB stick for instance.



Getting Work Done

LibreOffice is a good alternative to Microsoft Office. It can open Microsoft documents although it may have some trouble with especially complex ones. By default, it saves to the Open Document Format, but you can choose to save as Microsoft Office 2003 or 2007 if you want to share with Microsoft users. LibreOffice also is available for Windows or Mac OS X.

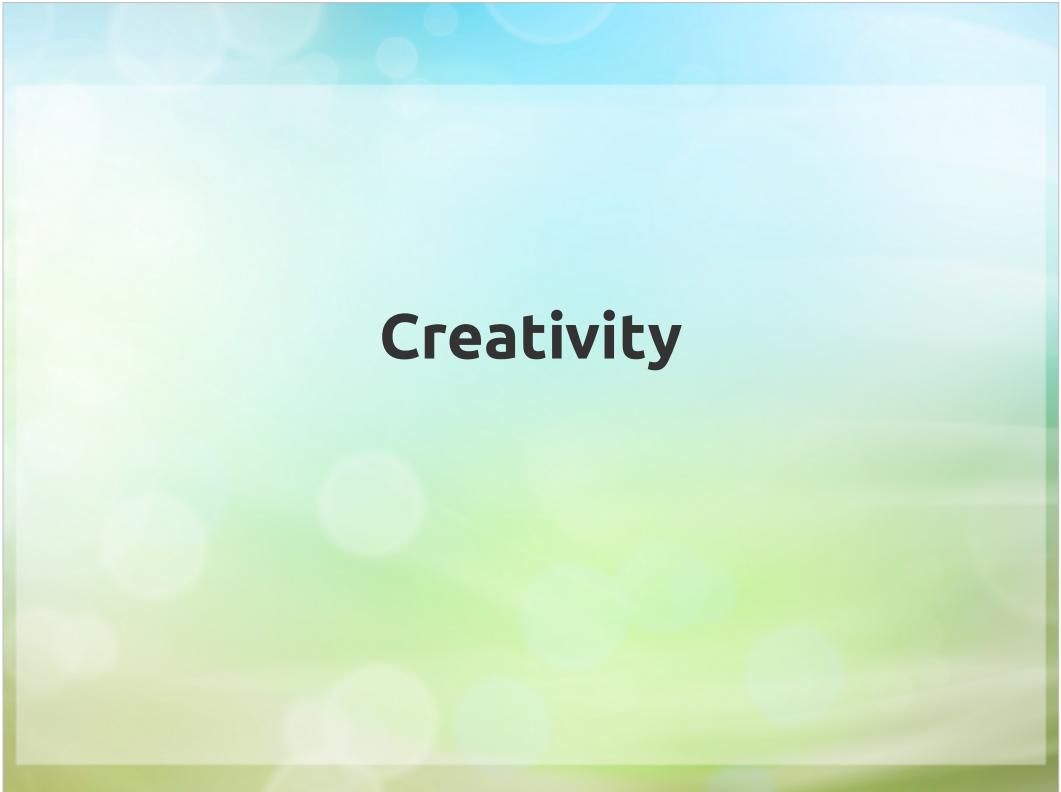
Ubuntu One gives you 5GB of online storage for free. It automatically sync files from certain folders and you can choose which folders you want backed up to the Internet. You can access your files via the Internet, your mobile phone, or from an app available for Windows or Mac. Additional storage and a music app are available for purchase.



Getting Fun Done

Ubuntu includes Mahjongg, Minesweeper, Sudoku, and Solitaire. Go to Game>Select Game to choose from the 50-something different solitaire variations.

Cheese is a handy webcam app available for install that's fun to play with.

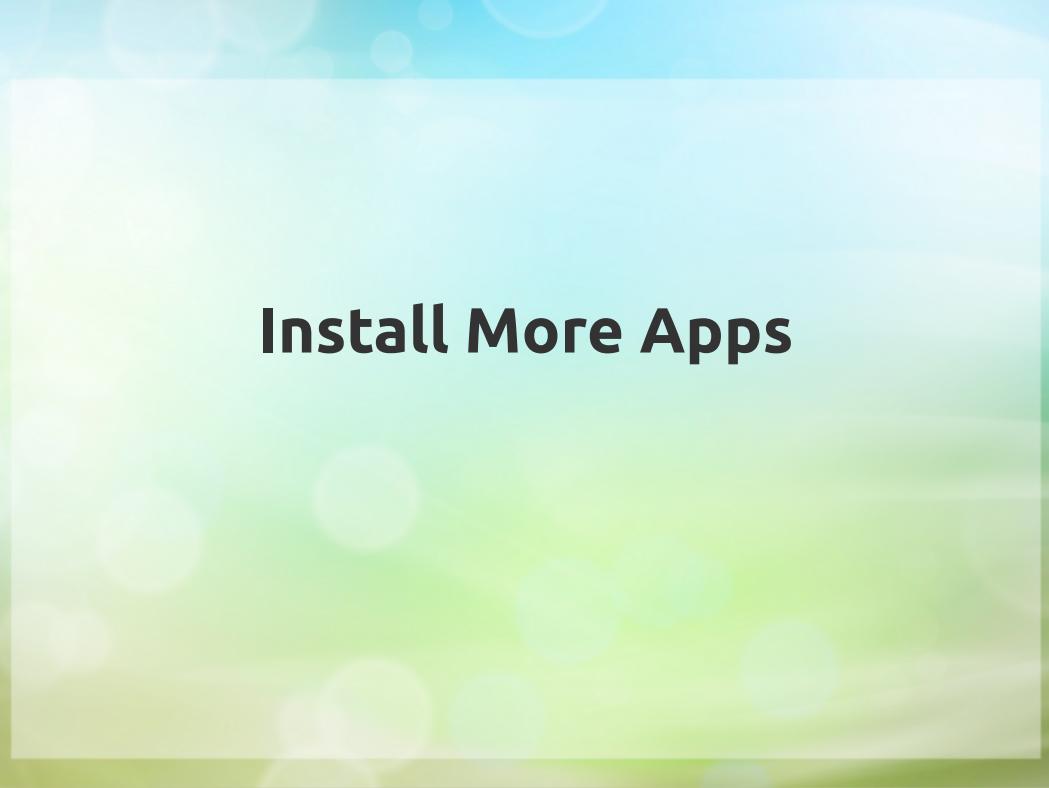


Creativity

Many apps are available for install for you to be creative and artistic.

Gimp is a powerful alternative to Photoshop. Inkscape is a vector graphics program. Vector graphics are lines and curves instead of pixels which means it can be scaled up or down and you shouldn't have the boxy look you get when you zoom in too far on a photograph.

Speaking of photographs, Shotwell is a nice photo management program included by default. There are several video editors (PiTiVi, OpenShot) available if you want too.



Install More Apps

Thousands of apps are available for install in the Software Center. Most are free but some are available for purchase.

Keeping Ubuntu Up to Date

Update Manager

If there's extra time, it might be a good time to show the Startup Disk Creator as the way to create a Ubuntu installer on a USB stick for netbooks. The USB stick is also faster than a CD and allows you to save files and settings too.

How Can I Get More Help?

Help!

- Pre-installed help
- help.ubuntu.com
- Askubuntu.com
- Ubuntuforums.com
- IRC chat
- Columbia Linux Users Group (COLALUG)

Eventually, there's a good chance you'll have some question or problem with Ubuntu. While you can Google for help, here's a few good places to go for free support.

#ubuntu on Freenode. You can use Empathy for IRC. Also see <https://help.ubuntu.com/community/InternetRelayChat> for other ways to use IRC.

Open Software Open Hardware Open Content

Open Source Software is software whose original source code is made freely available and may be redistributed with or without modification.

open-it-lab.com/open/software



Open Hardware is hardware whose design is made publicly available so that anyone can study, modify, distribute, make and sell the design or hardware based on that design.

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